IV. B. 20. Air Quality

a) Background. The Clean Air Act was passed in 1970 to restrict U.S. emissions of toxic substances into the atmosphere from mobile and stationary sources, such as automobiles and chemical plants, in the interest of protecting health, personal property (i.e. automobile paint finishes), and real property (i.e. monuments). The U.S. Environmental Protection Agency (EPA) was charged with setting limits on how much of a pollutant can be in the air anywhere in the United States. The law allows individual states to have stronger pollution controls (i.e. California), but states are not allowed to have weaker pollution controls than those set for the whole country because air pollution travels across jurisdictional borders.

States, in turn, have to develop State Implementation Plans (SIPs) that explain how each state will accomplish its objectives under the Clean Air Act. Typically, the SIPs will contain several Air Quality Control Regions (AQCRs) which geographically divide the states into special air quality scenario areas. Colorado has thirteen AQCRs as of this writing.

In 1990, Congress amended the Clean Air Act and added provisions to grant EPA authority to reduce the emission levels of 189 hazardous air pollutants (also known as air toxics).

In 1994, EPA's Office of Policy, Planning and Evaluation began the Cumulative Exposure Project which consists of three national analyses of multiple toxic contaminants in air, food and drinking water. The air component of the project uses information on the emissions of pollutants from a variety of source types in conjunction with computer models, to predict

concentrations of 148 air toxics throughout the country (a subset of the 188 toxic air pollutants listed in the 1990 Clean Air Act).

According to a recent EPA study, national levels of some key air pollutants were reduced from the period of 1985 through 1994 because of the implementation of the Clean Air Act as follows:

PERCENT DECREASE IN CONCENTRATIONS
(1985-1994)

Carbon Monoxide	28%
Lead	86%
Nitrogen Dioxide	09%
Ozone	12%
Particulate Matter	20%
Sulfur Dioxide	25%

Rural Development should take into consideration possible negative impacts to local air quality caused by the emissions of proposed projects. Similarly, Rural Development should also take into account negative impacts of local air emissions generators to projects proposed to be funded by the Agency.

b) Governing Regulations.

(1) Federal.

(a) Clean Air Act of 1970, as amended.

(b) Executive Order 11514, Protection and Enhancement of Environmental Quality.

(c) Title 7, Part 1b and 1c, Code of Federal Regulations, U.S. Department of Agriculture's National Environmental Policy Act.

(d) National Environmental Policy Act, 42 U.S.C. 4321.

(2) State.

(a) Title 25-7, Colorado Revised Statutes 1973, as amended, the Air Pollution Control Act.

(b) Titles 42-4-306.5 to 42-4-316, Colorado Revised Statutes, as amended.

c) Policy. Like clean water, wholesome food, and fertile land, good air quality is a precious resource. Without it, serious health problems can result. Polluted air can harm crops and other vegetation, reduce visibility, and accelerate the deterioration and soiling of buildings and materials.

The fundamental objective of the federal air pollution program is the protection of the public health and welfare from the harmful effects of air pollution. The U.S. Environmental Protection Agency (EPA) has been tasked with the responsibility for federal actions to reduce air pollution. It oversees: national ambient air quality standards, State implementation plans, new source performance standards, hazardous air pollutants, the prevention of significant deterioration, and vehicle emission controls.

State and local governments must ensure that air quality complies with EPA's ambient air quality standards since air pollutants easily cross State boundaries. The Air Quality Control Commission and the Air Quality Hearings Board serve to define policy direction and regulatory development. The Air Pollution Control Division of the Colorado Department of Public Health and Environment administers Colorado's air pollution control program and related technical activities. The mission is basically to reduce pollution to safe levels where it exceeds health standards and maintain air quality at acceptable levels where clean air currently exists. The objectives are achieved through the State Implementation Plan.

Rural Development should not authorize, fund, or carry out any proposed action that would be inconsistent with the objectives of the Clean Air Act State Implementation Plan. Whenever a proposal is determined to likely jeopardize air quality to a degree that would be in conflict with the State Implementation Plan, the Colorado Department of Public Health and Environment, Air Pollution Control Division, should be consulted as early as possible to determine the consequences of and establish appropriate protection requirements necessary regarding the action.

Additionally, Rural Development should not authorize, fund, or carry out any proposed action that would present a significant air pollution hazard to project occupants by virtue of the project's location near or adjacent to certain air pollution sources. Project sites located immediately downwind of lumber mills, food processing centers, large scale vehicle repair facilities, and certain light industrial plants are examples which should merit special evaluation in this regard.

d) Classification.

1) Attainment Area.

(a) Class I - best air quality; least degradation allowed.

(b) Class II - growth areas; moderate degradation allowed.

(c) Class III - deterioration allowed up to the minimum standard.

2) Non-Attainment Area.

Air quality does not meet the minimum standard for certain criteria pollutants. New sources above established threshold limits would be allowed but would have to meet potentially restrictive requirements for permitting and operation.

e) Agency Jurisdiction:

1) Federal.

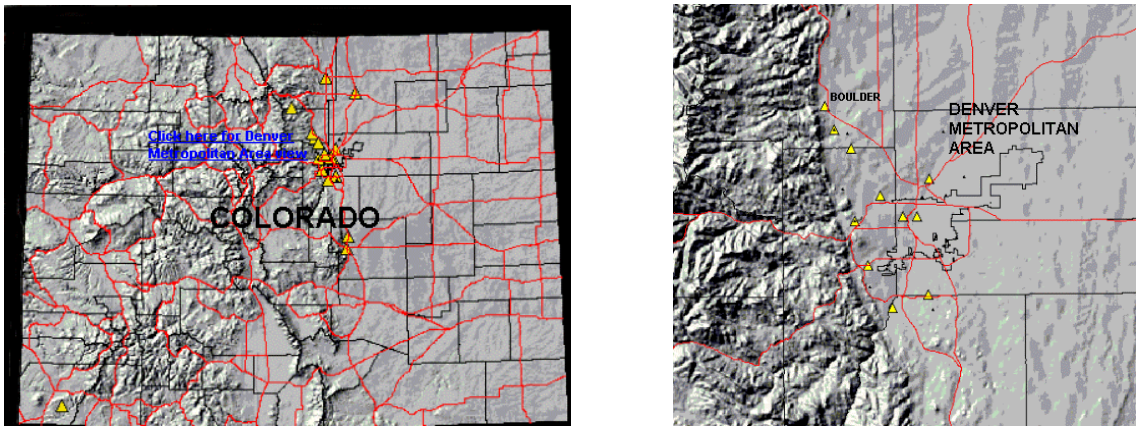
Confer with the U.S. Environmental Protection Agency, but note that initial contact should be made with the Colorado Department of Public Health and Environment, Air Pollution Control Division.

The EPA contact is:

U.S. Environmental Protection Agency
EPA Region 8 Office
999-18th St.
Suite 500
Denver, CO 80202-2466

Contact: 1-800-227-8917

http://www.epa.gov/region8/



EPA Region 8 ozone monitoring stations maps for Colorado and the Denver Metropolitan Area

2) State.

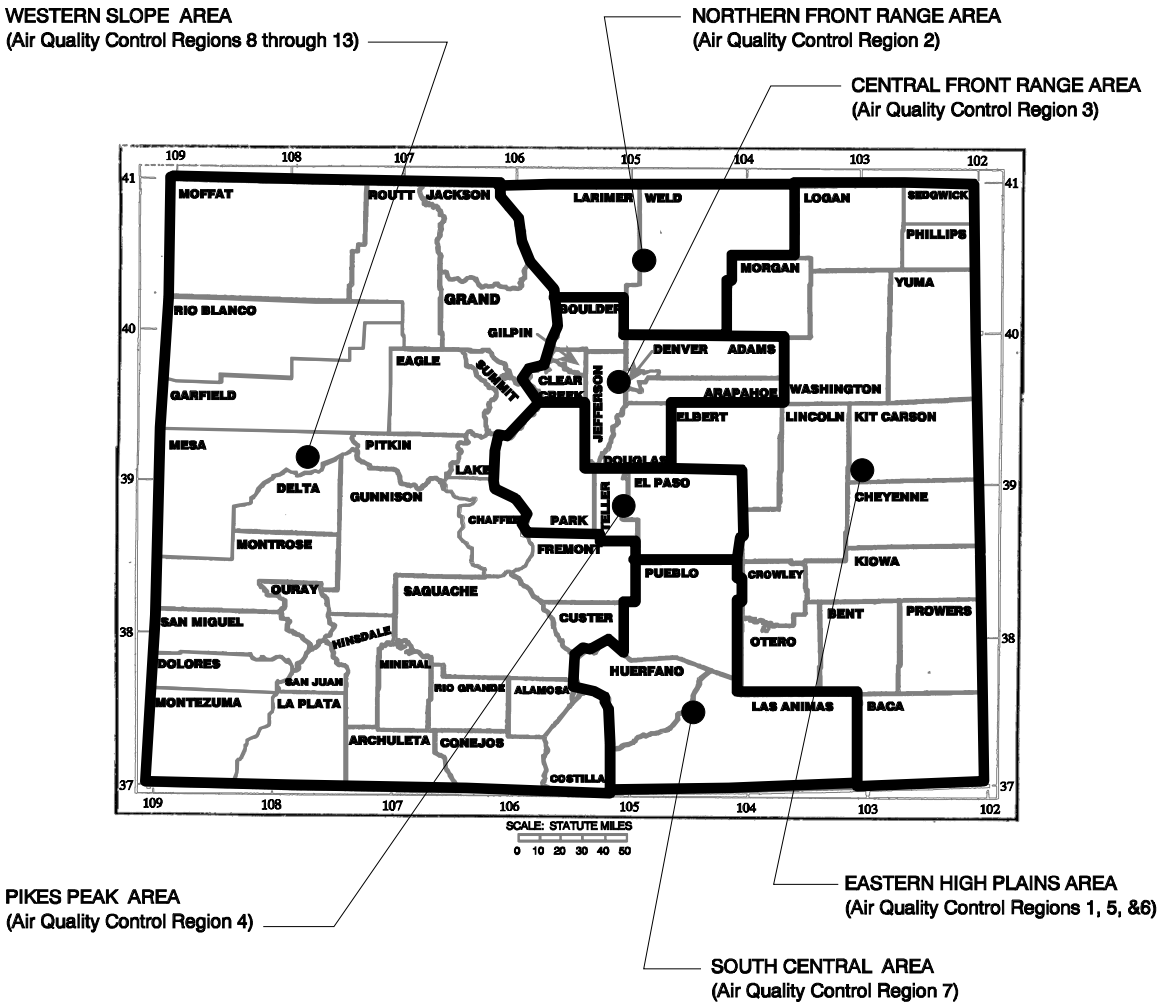
Confer with the Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division.

The CDPHE contact is:

Colorado Department of Public Health and Environment
Air Pollution Control Division
4300 Cherry Creek Drive South
Denver, Colorado 80246

(303) 692-3100

f) Location of Resource. The State of Colorado is divided into 6 Air Quality Control Regions (AQCRs) as shown below, as of this writing. Reference the appropriate ACQR when conferring with the EPA or CDPHE.


WESTERN SLOPE AREA
(Air Quality Control Regions 8 through 13)
NORTHERN FRONT RANGE AREA
(Air Quality Control Region 2)
CENTRAL FRONT RANGE AREA
(Air Quality Control Region 3)
MOFFAT
ROUTT
JACKSON
LARIMER
WELD
LOGAN
SEDGWICK
PHILLIPS
MORGAN
YUMA
GRAND
BOULDER
RIO BLANCO
GILPIN
DENVER
ADAMS
EAGLE
SUMMIT
CLEAR CREEK
JEFFERSON
ARAPAHOE
WASHINGTON
GARFIELD
ELBERT
LINCOLN
KIT CARSON
MESA
PITKIN
LAKE
DOUGLAS
DELTA
EL PASO
GUNNISON
CHEYENNE
CHAFFEE
PARK
TELLER
MONTROSE
FREMONT
KIOWA
PUEBLO
CROWLEY
OURAY
SAGUACHE
BENT
PROWERS
SAN MIGUEL
CUSTER
OTERO
HINSDALE
DOLORES
MINERAL
HUERFANO
SAN JUAN
RIO GRANDE
ALAMOSA
MONTEZUMA
LA PLATA
LAS ANIMAS
BACA
ARCHULETA
CONEJOS
COSTILLA
109
108
107
106
105
104
103
102
41
40
39
38
37
SCALE: STATUTE MILES
0 10 20 30 40 50
PIKES PEAK AREA
(Air Quality Control Region 4)
EASTERN HIGH PLAINS AREA
(Air Quality Control Regions 1, 5, &6)
SOUTH CENTRAL AREA
(Air Quality Control Region 7)

g) Six Principal Pollutants. The Clean Air Act has identified six principal components of "smog" which is heavily tied to the burning of petroleum-based fuels such as gasoline:

1) **Carbon monoxide.** A colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely. In cities, automobile exhaust can cause as much as 95 percent of all carbon monoxide emissions. Carbon monoxide enters the bloodstream and reduces oxygen delivery to the body's organs and tissues.

2) **Lead.** Smelters and battery plants are the major sources of lead in the air. The highest concentrations of lead are found in the vicinity of nonferrous smelters and other stationary sources of lead emissions. Lead accumulates in the body in blood, bone, and soft tissue. It can also affect the kidneys, liver, nervous system, and other organs, resulting in anemia, kidney disease, reproductive disorders, and neurological impairments.

3) **Nitrogen dioxide.** A suffocating, brownish gas which forms when fuel is burned at high temperatures coming principally from vehicle exhaust and stationary sources such as electric utilities and industrial boilers. Nitrogen dioxide is a strong oxidizing agent that reacts in the air to form corrosive nitric acid and plays a major role in the atmospheric reactions that produce ground-level ozone (smog). Nitrogen dioxide can irritate the lungs and lower resistance to respiratory infections such as influenza.

4) **Ozone.** Ground-level ozone (the primary constituent of smog) is the most complex; difficult to control; and pervasive of the six principal pollutants because, unlike other pollutants, it is not emitted directly into the air by specific sources. It is created by sunlight acting on nitrous oxide and volatile organic chemical emissions in the atmosphere. Exposure to ozone for 6 to 7 hours, even at relatively low concentrations, significantly reduces lung function and induces respiratory inflammation in normal, healthy people during periods of moderate exercise.

5) **Particulate matter.** A term for solid or liquid particles found in the air ranging in size from smoke to that requiring an electron microscope to detect. Primary sources for particulate matter are diesel trucks, wood stoves, and power plants. Major concerns for human health are effects on breathing and respiratory systems, damage to lung tissue, cancer, and premature death. The elderly, children, and people with chronic lung disease, influenza, or asthma tend to be especially sensitive.

6) **Sulfur dioxide.** This gas is formed when fuel containing sulfur (mainly coal and oil) is burned and during metal smelting and other industrial processes. Major health concerns associated with exposure to high concentrations of sulfur dioxide include effects on breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease.

h) Other References.

1) U.S. Environmental Protection Agency, Region 8

(Region 8 Air Monitoring Maps web-site)

http://www.epa.gov/region08/air/monitoring/airmaps/airmaps.html

2) U.S. Environmental Protection Agency

"Unified Air Toxics Web-site"

(Large, multiple, everything you wanted to know about…… topic web-site)

http://www.epa.gov/ttn/uatw/

3) U.S. Environmental Protection Agency

"Aerometric Information Retrieval System (AIRS)"

(Interactive web-site for locating information on emissions sources, types, monitoring stations, nonattainment areas, and more…..)

http://www.epa.gov/agweb/